

EPA's Water Awareness Technology Evaluation Research Security (WATERS) Center



WATERS Center is located at EPA's Test & Evaluation Facility in Cincinnati, Ohio

Goals

- ◆ Evaluate Sensor Technologies.
- ◆ Understand Contaminant Behavior in Distribution Systems.
- ◆ Evaluate Advanced Water Treatment Systems

Scope

- ◆ Chemical-Biological Warfare Agent Surrogates
- ◆ Toxic Industrial Chemicals
- ◆ Common Pathogens
- ◆ Pesticides / Herbicides

Early Warning Systems

- ◆ Existing Sensor Technologies
- ◆ Developing Sensor Technologies.
- ◆ Bio-sentinels

Existing Sensor Technologies



On-line Sensor & Probe



Multi Sensor Probe



Chlorine Sensor

Developing Sensor Technologies.



Photon Spectrometer Unit

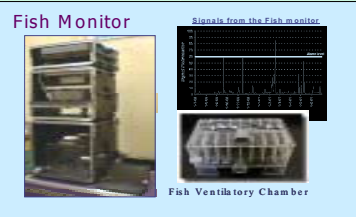


Imaging Microscopic Technology

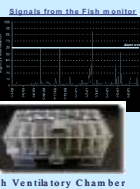


Electrochemistry/ Lab On-A-Chip ...
A Platform For Increased Sensitivity

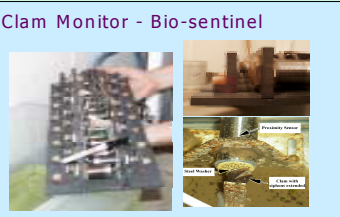
Bio-sentinels



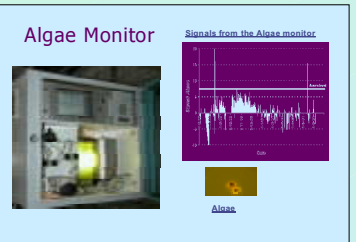
Fish Monitor



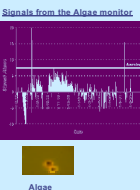
Signals from the Fish monitor



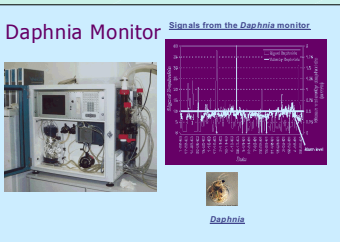
Clam Monitor - Bio-sentinel



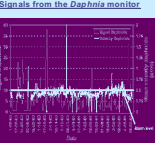
Algae Monitor



Signals from the Algae monitor



Daphnia Monitor



Signals from the Daphnia monitor

Distribution System Simulators

- ◆ Sensor Technology Evaluations
- ◆ On-line and Early Warning
- ◆ One-of-Kind Simulator



Advanced Treatment Technologies

- ◆ Ultrafiltration, Microfiltration, Disinfection

Ultrafiltration



Microfiltration



Disinfection



Distribution System Decontamination



- ◆ Designed and Fabricated – T&E
- ◆ Sensor, Sampling, Modeling, & Decon.
- ◆ IAG's
 - National Institute of Standards and Tech. (NIST)
 - Naval Surface Warfare Center (NAVSEA)
 - Edgewood Chemical & Biological Center (ECBC)

www.epa.gov/ordnhsrc/index.htm